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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,261	12/29/2000	Prosenjit Ghosh	42390P10242	8967

7590 11/25/2003

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EXAMINER	
BOYD, JENNIFER A	

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/751,261	GHOSH, PROSENJIT	
	Examiner	Art Unit	
	Jennifer A Boyd	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. The Request for Continued Examination was entered on August 11, 2003. The Applicant's Amendments and Accompanying Remarks have been carefully considered. Claims 1, 10 and 20 are amended and claims 1 and 3 – 28 are pending. In view of Applicant's Amendments, the Examiner withdraws the 35 U.S.C. 112, second paragraph, rejection of claim 20 as found in paragraphs 4 and 5 of the previous Office Action dated May 7, 2003. The Examiner withdraws the rejection of claims 1, 3 and 7 under 35 U.S.C. 102(b) as being anticipated by Mayer (US 1,699,302) as found in paragraphs 7 – 8 of the Office Action dated September 25, 2002. The Examiner withdraws the rejection of claims 1 and 3 – 9 under 35 U.S.C. 102(b) as being anticipated by Bovenschen (US 5,384,185) as found in paragraphs 9 – 18 of the Office Action dated September 25, 2002. Despite these advances, the invention as currently claimed is not found to be patentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. Claims 1, 4, 5, 10, 17, 18, 20, 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 4, 5, 17, 18, 24 and 25 contradict the independent claims 1, 10 and 20. By definition, malleable fibers must contain metal. Therefore, carbon, graphite or other non-metal fibers cannot be malleable. For the purpose of Examination at the time, the Examiner will assume that Applicant's "malleable" can encompass non-metal and metal fibers.

Claim Rejections - 35 USC § 102

5. Claims 1 and 3 – 28 are rejected under 35 U.S.C. 102(a)(e) as being anticipated by Webb (US 6,542,371).

Webb is directed to a high thermal conductivity heat transfer pad (Title).

As to claims 1, 10 - 11 and 20 - 21, Webb teaches a thermal pad, equated to Applicant's "thermal interface", for use in facilitating heat flow between a heat source surface, equated to Applicant's "heat source" and a heat sink surface, equated to Applicant's "thermal plate" (Abstract). Webb teaches that that the "thermal interface" can comprise a fabric having carbon fibers (non-metal) or metallic thread (column 5, lines 10 – 50). The heat sink 40 is used to facilitate the heat removal from the IC package 34. The thermal pad 32 is located between the IC package 34 and heat sink 40 to reduce the thermal resistance of the interface, thus increasing the heat flow away from the package 34 (column 5, lines 50 – 67 and column 6, lines 1 – 5 and Figure 3). Webb teaches that pressure is applied to partially compress the thermal pad between the heat transfer surfaces (column 6, lines 5 – 10). Webb teaches that the thermal pad will contact the heat transfer surfaces at a multitude of locations to further enhance thermal transfer (column 6, lines 23 – 27). Therefore, the thermal pad will provide a "substantially continuous path" of fibers between the two surfaces due to the pad/surface contact.

As to claims 3, 16 and 23, Webb teaches that the "thermal interface" can comprise metallic thread (column 5, lines 35 – 37).

As to claims 4 – 5, 17 – 18 and 24 - 25, Webb teaches that the "thermal interface" can comprise carbon fibers (column 3, lines 10 – 13), which are known in the art to be non-metal fibers.

As to claims 6 and 19, Webb teaches that the thermal substance, or "thermal medium", typically consists of a binding agent (column 4, lines 15 – 17). When the thermal interface comprising the thermal substance is applied to the first surface, the binding agent would assist in the adhesion of the interface to the surface.

As to claims 7, 12 and 26, Webb teaches that the "thermal interface" can be a matted or felted fabric (column 5, lines 24 – 25), which would inherently have a random pattern.

As to claims 8, 13 and 27, Webb teaches that the "thermal interface" can comprise a lattice. A lattice is defined as "an open framework made of strips of metal, wood or similar material overlapped or overlaid in a regular, usually crisscross pattern" (The American Heritage Dictionary of the English Language: 4th Edition, 2000). Therefore, a lattice structure would have overlaid or "stacked" elements".

As to claims 9, 14 and 28, Webb teaches that the "thermal interface" can be a woven fabric (column 3, lines 8 – 35 and column 5, line 18).

As to claims 15 and 22, Webb teaches that the "thermal interface" can be impregnated with a thermal substance (column 4, lines 1 – 5). The thermal substance, equated to Applicant's "thermal medium", can include any of a wide variety of materials that will perform a gap-filling

function within the interstice between the heat transfer surfaces during the periods of operation (column 4, lines 11 – 15).

Response to Arguments

6. Applicant's arguments regarding Webb (US 6,542,371) filed August 11, 2003 have been fully considered but they are not persuasive.

In response to Applicant's Arguments that Webb (US 6,542,371) does not disclose "a thermal interface including a plurality of malleable fibers between the first and second surfaces, the compression fibers conforming the fibers into contact with each other and into contract, forming a substantially continuous path among the fibers, to transfer heat between a first and second surface", the Examiner respectfully argues the contrary. As stated above, Webb teaches a thermal pad for use in facilitating heat flow between a heat source surface and a heat sink surface. Webb teaches that that the "thermal interface" can comprise a fabric having carbon fibers (non-metal) or metallic thread. The thermal pad is located between the IC package and heat sink to reduce the thermal resistance of the interface, thus increasing the heat flow away from the package. Webb teaches that pressure is applied to partially compress the thermal pad between the heat transfer surfaces. Webb teaches that the thermal pad will contact the heat transfer surfaces at a multitude of locations to further enhance thermal transfer. Therefore, the thermal pad will provide a "substantially continuous path" of fibers between the two surfaces due to the pad/surface contact. Webb discloses each and every limitation of the Applicant's independent claims and, therefore, the Examiner believes that Webb provides a valid rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 703-305-7082. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer Boyd
November 19, 2003

ELIZABETH M. COLE
PRIMARY